

Letter to the Editor

Induction of Apoptosis by Laser: A New Therapeutic Modality

Having proposed that a suitable low level of laser energy leads to apoptosis [1] and not to accidental cell death [2], my attention was drawn to the article by Chapman [3] about low power laser-induced interstitial thermotherapy (LITT). Using a Potassium-Titanyl-Phosphate/Neodymium:Yttrium-Aluminium-Garnet laser, the author has treated 293 patients suffering from uterine leiomyomas. The 694 tumors (73%) varied between 3 cm and 6 cm in diameter, and a single course of low power LITT made them disappear within 6 months. A subsequent histopathological examination, when available, indicated that the successful treatment was not followed by scarring but by the presence of giant cells.

These results suggest that the low power LITT did not induce the photothermal coagulation of tumors, which would be followed by inflammation and the organization of dead tissues, but the apoptosis of tumoral cells followed by their phagocytosis by macrophages [2]. Besides numerous other inducers [4], apoptosis or programmed cell death also can be triggered by physical factors such as gamma and ultraviolet radiations [5], heat and cold shocks [5], loss of matrix attachment [4], and mechanical cell deformation [6]. As far as I know, induction of apoptosis by laser has

not been still explored and used purposefully in experimental or clinical therapy. Chapman [3] is quite correct, therefore, when she considers low power LITT to be "an entirely new physical phenomenon that needs further study." One would welcome particularly a detailed and chronological histopathological study of cell death in the tissues treated by this method.

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